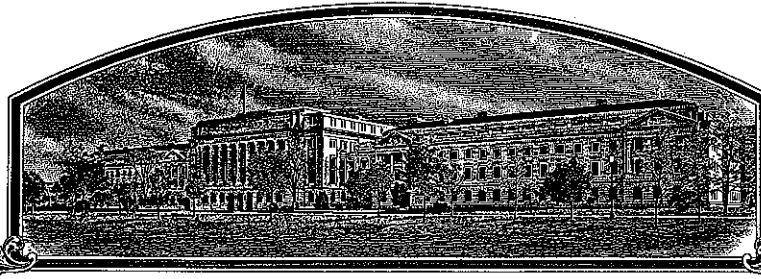


No.

200200255



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Pure Seed Testing, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE FOREGOING PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

TUFTED HAIRGRASS

'Shade Champ'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this fifteenth day of April, in the year two thousand and eight.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE


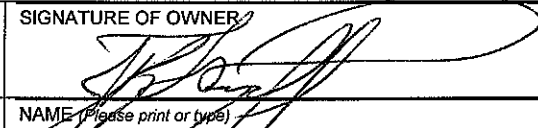
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

1. NAME OF OWNER Pure Seed Testing, Inc.		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME PST-25086		3. VARIETY NAME Shade Champ	
4. ADDRESS (Street and No., or RFD No., City, State, and ZIP Code, and Country) P.O. Box 449 Hubbard, OR 97032		5. TELEPHONE (include area code) (503) 651-2130		FOR OFFICIAL USE ONLY PVPO NUMBER 200200255	
		6. FAX (include area code) (503) 263-0703		FILING DATE Sept. 10, 2002	
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) Corporation		8. IF INCORPORATED, GIVE STATE OF INCORPORATION Oregon		9. DATE OF INCORPORATION 1975	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) Crystal Rose-Fricker Pure Seed Testing, Inc. P.O. Box 449 Hubbard, OR 97032				FILING AND EXAMINATION FEES: \$ 2705.00 DATE 9/10/2002 CERTIFICATION FEE: \$ 768.- DATE 3/24/2008	
11. TELEPHONE (Include area code) (503) 651-2130		12. FAX (Include area code) (503) 263-0703		13. E-MAIL crystal@turf-seed.com	
				14. CROP KIND (Common Name) Tufted Hairgrass	
18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)					
a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) g. <input checked="" type="checkbox"/> Filing and Examination fee (\$2,705), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)					
19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? See Section 83(a) of the Plant Variety Protection Act <input type="checkbox"/> YES (If "yes," answer items 20 and 21 below) <input checked="" type="checkbox"/> NO (If "no," go to item 22)					
20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, WHICH CLASSES? <input checked="" type="checkbox"/> FOUNDATION <input checked="" type="checkbox"/> REGISTERED <input checked="" type="checkbox"/> CERTIFIED					
21. DOES THE OWNER SPECIFY THAT THE CLASSES BE LIMITED AS TO NUMBER OF GENERATIONS? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, SPECIFY THE NUMBER 1, 2, 3, etc. 6 <input checked="" type="checkbox"/> FOUNDATION 6 <input checked="" type="checkbox"/> REGISTERED 7 <input checked="" type="checkbox"/> CERTIFIED RAO 12/28/07 (If additional explanation is necessary, please use the space indicated on the reverse.)					
22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U.S. OR OTHER COUNTRIES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)					
23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)					
24. The owners declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue will be deposited in a public repository and maintained for the duration of the certificate. The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.					
SIGNATURE OF OWNER 			SIGNATURE OF OWNER 		
NAME (Please print or type) Crystal Rose-Fricker			NAME (Please print or type) Joseph K. Wipff, Ph.D.		
CAPACITY OR TITLE President		DATE 8/20/02		CAPACITY OR TITLE Taxonomist/Plant Breeder	
				DATE 8/26/02	

INSTRUCTIONS

200200255

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to reproduce the variety, or for tuber reproduced varieties verification that a viable (*in the sense that it will reproduce an entire plant*) tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for \$2,705 (\$320 filing fee and \$2,385 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfilled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 500, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$320 for issuance of the Certificate.

Plant Variety Protection Office

Telephone: (301) 504-5518

FAX: (301) 504-5291

Homepage: <http://www.ams.usda.gov/science/pvp.htm>

ITEM

- 18a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
(2) the details of subsequent stages of selection and multiplication;
(3) evidence of uniformity and stability; and
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified.
- 18b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
(1) identify these varieties and state all differences objectively;
(2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences;
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 18c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 18d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 18e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
19. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See Regulations and Rules of Practice, Section 97.103).
21. See Section 83 of the Act for the Contents and Term of Plant Variety Protection.
22. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
23. See Section 5.5 of the Act for instructions on claiming the benefit of an earlier filing date.
21. CONTINUED FROM FRONT (Please provide a statement as to the limitation and sequence of generations that may be certified.)

22. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)
The first sale of Certified seed was September 28, 2001.

23. CONTINUED FROM FRONT (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the applicant/certificate. There is no charge for filing a change of address. The fee for filing a change of ownership or assignment or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of Regulations and Rules of Practice.)

To avoid conflict with other variety names in use, the applicant must check the variety names proposed by contacting: Seed Branch, AMS, USDA, Room 213, Building 306, Beltsville Agricultural Research Center—East, Beltsville, MD 20705. Telephone: (301) 504-8089.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this collection of information is (0581-0055). The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs). Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact the USDA's TARGET Center at 202-720-2600 (voice and TDD). To file a complaint, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, D.C. 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

S&T-470 (2-99) designed by the Plant Variety Protection Office with WordPerfect 6.0a. Replaces STD-470 (6-98) which is obsolete.

Revised - Exhibit A**Origin and Breeding History of 'Shade Champ' (PST-25086) Tufted Hairgrass**

Shade Champ is the result of mass selection for shade tolerance, higher seed head number, a low growth habit, overall disease resistance and uniformity.

A nursery of 1,536 spaced plants was established the fall of 1999. These individual plants were sprigged during the summer of 1999 from a shade turf trial established the fall of 1998.

Shade Champ originates from a collection made the spring of 1997 from an animal garden (name unknown) in downtown Stockholm, Sweden. The collection was grown in Holland and allowed to interpollinate with other collections. This seed was planted in a shade trial in Oregon Fall of 1998. One cycle of mass selection was made for uniformity and disease resistance. Its performance in shade the first year warranted further selection, therefore the nursery was established in 1999. During the year, 2000, the nursery was rogued for the above traits leaving a total of 800 plants to be harvested as the breeder seed of Shade Champ tufted hairgrass.

Shade Champ has been observed to be stable and uniform for four years through Breeder, Foundation and Certified seed generations. Breeder seed is maintained by Pure-Seed Testing, Inc. and will be regenerated as needed. Seed propagation of Shade Champ is limited to three generations of increase from Breeder seed: one each of Foundation, Registered and Certified. No off-types or variants have been observed in the reproduction or multiplication from breeder seed to foundation seed. Shade Champ tufted hairgrass and the parents of Shade Champ have produced turf and seed production fields of good quality, acceptable uniformity and good stability.

Revised - Exhibit B**Novelty Statement for Shade Champ (PST-25086) Tufted Hairgrass**

'Shade Champ' is most similar to Spike tufted hairgrass. They differ in the following characteristics.

1. Shade Champ has a plant height at least 15.8 cm shorter than Spike (Tables 2-2A).
2. Shade Champ has a flag leaf height at least 9.9 cm shorter than Spike (Tables 2-2A).
3. Shade Champ has a panicle length at least 4.1 cm shorter than Spike (Tables 2-2A).
4. Shade Champ has a tiller leaf length at least 3.7 cm shorter than Spike (Tables 2-2A).
5. Shade Champ has a tiller leaf sheath length at least 2.0 cm shorter than Spike (Tables 2-2A).

'Shade Champ' differs from SR 6000 in the following characteristics.

1. Shade Champ has a plant height at least 18.9 cm shorter than SR 6000 (Table 2B-2C).
2. Shade Champ has a flag leaf height at least 21.2 cm shorter than SR 6000 (Table 2B-2C).
3. Shade Champ has a tiller leaf length at least 5.5 cm shorter than SR 6000 (Table 2B-2C).
4. Shade Champ has a tiller leaf sheath length at least 5.0 cm shorter than SR 6000 (Table 2B-2C).
5. Shade Champ has a flag leaf length at least 7.8 cm shorter than SR 6000 (Table 2B-2C).

Table 1. Mean initial heading dates for entries in a tufted hairgrass seed yield trial seeded fall of 2000 near Hubbard, OR.

Entry	2001	2002
DCM Old	1 June	9 June
Spike	30 May	8 June
Shade Champ	2 June	5 June
Syn DCM	29 May	31 May
DCE Bulk	19 May	12 May
LSD (0.05)	3 days	3 days

Table 2. 2002 mean morphological measurements for entries in a tufted hairgrass seed yield trial seeded fall of 2000 near Hubbard, OR.

Entry	Plant Height (cm)	Flag Leaf Height (cm)	Tiller Leaf Sheath Length (cm)	Panicle Length (cm)	Tiller Leaf Length (cm)	Tiller Leaf Width (mm)	Flag Leaf Sheath Length (cm)	Flag Leaf Length (cm)	Flag Leaf Width (mm)	Tiller Count (#/12.7 cm Row)
Spike	105.8	58.1	16.6	23.0	17.4	4.4	26.7	15.1	3.8	28.0
Shade Champ	90.0	48.2	14.6	18.9	13.7	3.6	19.8	14.0	3.8	45.4
LSD (0.05)	4.3	4.6	1.1	1.2	1.6	0.4	2.5	1.4	0.6	11.1

Table 2A. 2002 mean morphological measurements for entries in a tufted hairgrass seed yield trial seeded fall of 2001 near Hubbard, OR.

Entry	Plant Height (cm)	Flag Leaf Height (cm)	Tiller Leaf Sheath Length (cm)	Panicle Length (cm)	Tiller Leaf Length (cm)	Tiller Leaf Width (mm)	Flag Leaf Sheath Length (cm)	Flag Leaf Length (cm)	Flag Leaf Width (mm)	Tiller Count (#/12.7 cm Row)
Spike	107.1	58.7	13.6	20.9	11.3	3.4	24.2	10.4	3.5	92.1
PST-DCM	106.4	53.0	12.7	23.3	11.5	3.5	22.8	10.5	3.5	59.1
Shade Champ	68.2	26.2	7.3	14.9	7.5	2.9	15.7	7.1	2.8	20.4
LSD (0.05)	2.6	2.4	0.7	1.1	0.7	0.2	1.4	1.0	0.4	10.1

Table 2B. 2000 mean morphological measurements for entries in a *Deschampsia* seed yield trial seeded fall of 1998 near Hubbard, OR.

Entry	Plant Height (cm)	Flag Leaf Height (cm)	Flag Leaf to Panicle Top (cm)	Tiller Leaf Sheath Length (cm)	Flag Leaf Sheath Length (cm)	Tiller Leaf Length (cm)	Tiller Leaf Width (mm)	Flag Leaf Length (cm)	Flag Leaf Width (mm)	Tiller Count (#/12.7 cm Row)
SR 6000	123.0	70.9	51.9	16.4	26.5	18.5	2.4	21.4	3.2	50.6
Shade Champ	104.1	49.7	51.5	11.4	22.7	13.0	2.0	12.9	2.0	55.8
LSD (0.05)	2.9	3.4	2.8	0.9	1.2	1.2	0.3	1.4	0.3	10.4

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Table 2C. 2000 mean morphological measurements for entries in a *Deschampsia* seed yield trial seeded fall of 1999 near Hubbard, OR.

<u>Entry</u>	<u>Plant Height (cm)</u>	<u>Flag Leaf Height (cm)</u>	<u>Flag Leaf to Panicle Top (cm)</u>	<u>Tiller Leaf Sheath Length (cm)</u>	<u>Flag Leaf Sheath Length (cm)</u>	<u>Tiller Leaf Length (cm)</u>	<u>Tiller Leaf Width (mm)</u>	<u>Flag Leaf Length (cm)</u>	<u>Flag Leaf Width (mm)</u>	<u>Panicle Length (cm)</u>	<u>Tiller Count (#/12.7 cm Row)</u>
BR 6000	114.5	61.4	56.8	14.1	24.1	16.9	2.5	16.5	3.2	23.4	51.3
Shade Champ	88.0	33.3	51.0	8.6	18.9	10.6	2.0	8.7	1.8	18.1	22.0
SD (0.05)	4.1	3.3	3.9	1.1	1.5	1.0	0.3	1.1	0.3	1.3	6.3

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this collection of information is (0581-0055). The time required to complete this information collection is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY PROGRAM
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

200200255 EXHIBIT C
200200255 (HAIRGRASS)

OBJECTIVE DESCRIPTION OF VARIETY
HAIRGRASS
(*Deschampsia* spp.)

NAME OF APPLICANT(S) Pure Seed Testing, Inc.	TEMPORARY DESIGNATION PST-25086	VARIETY NAME Shade Champ
ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code) P.O. Box 449, Hubbard, OR 97032		FOR OFFICIAL USE ONLY PVPO NUMBER

Select the number which characterizes the variety in the features described below. For measured characteristics use leading zeros as necessary in order to fill all blanks (e.g. 089). Those characteristics marked with a star * are preferred to be recorded. Any others should be recorded to help establish novelty or uniqueness. Characteristics described, including numerical measurements, should represent those that are typical for the variety. Measured data should be for SPACED PLANTS. Royal Horticultural Society or any recognized color fan may be used to determine plant colors; designate the system used:

Describe location of test area, conditions, and number of Plants used: Pure Seed Testing Research Farm near Hubbard, OR. Sixty plants measured from P.V.P. nursery planted in a randomized complete block with three replications of 20 plants each.

1. SPECIES:

☐ 1 = *Deschampsia cespitosa* 2 = Others (Please Specify):

☐ ☐ ☐ Chromosome Number

2. ADAPTATION: (0 = Not Tested, 1 = Not Adapted, 2 = Adapted, 3 = Well Adapted)

☐ 2 Northeast ☐ 1 Transitional Zone ☐ 1 Southeast ☐ 2 North Central
☐ 3 Pacific N.W. ☐ 2 Intermountain ☐ 2 Southwest (CA, AZ) ☐ Other (Please Specify):

3. MATURITY (At first anthesis): Give test area near Hubbard, Oregon.

☐ 4 1 = Very Early 2 = Early 3 = Medium Early
4 = Medium late 5 = Late
6 = Very Late

Date of First Anthesis: June 5 See Table 1

☐ ☐ Number of days earlier than ☐ } 1 = Shade Champ
Maturity same as ☐
☐ ☐ Number of days later than ☐ }

7

4. PLANT HEIGHT (At maturity-Average of longest shoot of 10 plants from soil surface to top of panicle): Test Area Hubbard, OR

cm Height

See Table 2

200200255

cm Shorter than

1 = Shade Champ

Height same as

cm Taller than

5. HEIGHT TO FLAG LEAF (At maturity-Average of longest shoot of 10 plants from soil surface to the collar of the flag leaf):
Test Area Hubbard, OR

cm Height

See Table 2

cm Shorter than

1 = Shade Champ

Height same as

cm Taller than

cm Length from flag leaf collar to tip of panicle

6. LEAF BLADE: See Table 2

Green color:

1 = Light green

2 = Medium green

3 = Moderately dark green

4 = Very dk. green

cm

mm Length [second uppermost (tiller) leaf]

RAD 10/2/07

mm Narrower than

1 = Shade Champ

Width same as

mm Wider than

mm Width [second uppermost (tiller) leaf]

mm Shorter than

1 = Shade Champ

Length same as

mm Longer than

Position of flag leaf (angle to stem): 1 = Appressed 2 = Open angle, yet stiff 3 = Nodding

cm Flag Leaf Length

mm Flag Leaf Width

8

7. TILLER LEAF SHEATH: (Second uppermost sheath) *See Table 2*

200200255

mm sheath length

mm Shorter than

Length same as

mm Longer than

1 = Shade Champ

Surface Roughness (to touch): 1 = Smooth 2 = Rough

mm Ligule length

Hairs on ligule: 1 = Absent 2 = Present

FLAG LEAF SHEATH:

mm Sheath Length

mm Ligule Length

8. PANICLE (Mature Plant): *See Table 2*

mm Length (Lowest branch whorl to top, for 10 plants) Test Area: _

mm Shorter than

Panicle same as

mm Longer than

1 = Shade Champ

Panicle branches: 1 = Smooth 2 = Scabrous

Branches Attitude (Lowest whorl): 1 = Drooping 2 = Horizontal 3 = Ascending

Number of main branches in lowest whorl:

Panicle habit: 1 = Nodding 2 = Upright

Panicle type: 1 = Open 2 = Intermediate 3 = Contracted

Anther color (anthesis): 1 = Purple 2 = Yellow

9

9. SPIKELELET

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4	0	3
---	---	---

 mm Length (from 10 spikelets)

--	--

 mm Shorter than

same as

--	--

 mm Longer than

--

--

--

1 = Shade Champ

LEMMA

0	3
---	---

 mm Length

--	--

 mm Shorter than

same as

--	--

 mm Longer than

--

--

--

1 = Shade Champ

2

 awns: 1 = straight 2 = geniculate

1

 awns: 1 = longer than spikelet 2 = shorter than spikelet

10. SEED: (Floret-not dehulled)

	.8	0
--	----	---

 mm Width (average of 10)

2	.6	0
---	----	---

 mm Length

3	.0	2	3
---	----	---	---

 Milligrams per 10,000 seed

--	--	--

 Milligrams less than

Weight same as

--	--	--

 Milligrams more than

--

--

--

1 = Shade Champ

11. ENVIRONMENTAL RESISTANCE:

(0 = Not Tested; 1 = Very Susceptible, 2 = Moderately Susceptible, 3 = Moderately Resistant, 4 = Highly Resistant)

2

 Cool Temperature
(Winter color)

3

 Cold (injury)

2

 Heat

2

 Drought

4

 Shade

3

 Low Fertility

3

 Acid Soil
(< pH 5.5)

0

 Alkalinity
(pH > 7.5)

2

 Salinity

2

 Soil Compaction

4

 Poor Drainage

0

 Air Pollution

--

 Other (Please Specify):

10

12. DISEASE RESISTANCE:

(0 = Not Tested; 1 = Very Susceptible, 2 = Moderately Susceptible, 3 = Moderately Resistant, 4 = Highly Resistant)

200200255

<input type="text" value="3"/> Melting-Out <i>Drechslera poae</i> (<i>Helminthosporium vagans</i>)	<input type="text" value="0"/> Sclerotinia <i>S. borealis</i>
<input type="text" value="3"/> Helminthosporium Leaf Spot <i>Bipolaris sorokiniana</i>	<input type="text" value="4"/> Stem Rust <i>Puccinia graminis</i>
<input type="text" value="2"/> Brown Patch <i>Rhizoctonia solani</i>	<input type="text" value="4"/> Stripe Rust <i>P. striiformis</i>
<input type="text" value="3"/> Powdery Mildew <i>Erysiphe graminis</i>	<input type="text" value="4"/> Leaf Rust <i>P. poae-nemoralis</i>
<input type="text" value="0"/> Stripe Smut <i>Ustilago striiformis</i>	<input type="text" value="0"/> Orange Stripe Rust <i>P. poarum</i>
<input type="text" value="0"/> Flag Smut <i>Urocystis agropyri</i>	<input type="text" value="0"/> Pythium Blight <i>Pythium</i> spp.
<input type="text" value="3"/> Pink Snow Mold <i>Fusarium nivale</i>	<input type="text" value="3"/> Red Thread <i>Corticium fujiciforme</i>
<input type="text" value="3"/> Ergot <i>Claviceps purpurea</i>	<input type="text" value="1"/> Take All <i>Gaeumannomyces graminis</i>
<input type="text" value="0"/> Fusarium Blight <i>Fusarium roseum</i> , <i>F. tricinctum</i>	<input type="text"/> Other (Please Specify):
<input type="text" value="0"/> Typhula Blight <i>Typhula</i> spp.	<input type="text"/> Other (Please Specify):
<input type="text" value="2"/> Dollar Spot <i>Sclerotinia homoeocarpa</i>	

13. INSECTS, NEMATODES, RESISTANCE:

(0 = Not Tested; 1 = Very Susceptible, 2 = Moderately Susceptible, 3 = Moderately Resistant, 4 = Highly Resistant)

<input type="text" value="0"/> Chinch Bug <i>Blissus</i> spp. (give species:)
<input type="text" value="0"/> Sod Webworm <i>Crambus</i> spp. (give species:)
<input type="text" value="1"/> Bluegrass Billbug <i>Sphenophorus parvulus</i>
<input type="text" value="0"/> White Grub: Japanese Beetle, Chafers (give species)
<input type="text" value="0"/> Greenbug Aphid <i>Schizaphis graminum</i>
<input type="text"/> Other (Please Specify):
<input type="text"/> Other (Please Specify):

14. Give variety or varieties that most closely resemble the application variety. For the following characteristics indicate Degree of Resemblance by placing in the column marked D.R., one of the following numbers: 1 = Application variety is less than comparison variety; 2 = Same as; 3 = More than, better, greater, darker, more disease resistant, etc. No Comparison Variety

CHARACTER	VARIETY	D.R.	CHARACTER	VARIETY	D.R.
Maturity-heading			Leaf Width		
Height			Leaf Color Spring		
Seed Size			Leaf Color Summer		
Seed Weight			Leaf Color Winter		
Cold Injury			Drought		
Heat			Disease**		
Shade					

**Specify each disease evaluated.

15. ADDITIONAL DESCRIPTION

Describe all characteristics and conditions that cannot be adequately described in this form in Exhibit D.

PRODUCTION ACRES
DESIRED OF
FLAGGED VARIETIES

- Shadechamp
(25086 Tifted Ho. 1964)

2001
DESCHAMPSIA
CESPITOSA
SEED YIELD TRIAL
PLANTED
9-12-2001

1-1 DCR

#200200233

Handwritten text, likely a signature or name, obscured by a white rectangular redaction box.

Exhibit D.**Additional Description of Shade Champ (PST-25086) Tufted Hairgrass**

Shade Champ is a new species of grass being tested for turf use.

Shade Champ has exhibited good performance under dense shade conditions (Table 3).

Shade Champ has shown moderate resistance to red thread and is susceptible to Take-all Patch (Table 4).

Shade Champ has shown added benefits when used in mixtures with tall fescue in North Carolina and Oregon turf trials (Table 5 and 6).

Shade Champ goes dormant in the winter (Table 6).

Shade Champ blends well with fine fescue, Kentucky bluegrass and crested dogtail in Oregon (Table 6).

Table 3. Mean turf quality ratings for entries in a *Deschampsia caespitosa* and crested dogtail shade turf trial seeded fall of 1998 near Hubbard, OR. (9 = ideal)

<u>Entry</u>	<u>1999</u>	<u>2000</u>	<u>Mean</u>
Shade Champ <i>Deschampsia</i> *	5.7	5.5	5.6
CDM Bulk Crested Dogtail	4.6	5.5	5.1
3008-98 <i>Deschampsia</i>	5.2	4.2	4.7
SR 6000 <i>Deschampsia</i>	5.1	3.2	4.2
CCL-98 Crested Dogtail	4.8	5.0	4.9
Shade Star Crested Dogtail	4.8	5.0	4.9
LSD (0.05)	0.6	1.1	0.6

* = One Rep Only.

Table 4. Mean red thread and turf quality ratings for entries in a tufted hairgrass turf trial seeded fall of 1999 near Hubbard, OR.

<u>Entry</u>	<u>Red Thread 29 Mar 01</u>	<u>Turf Quality</u>		
		<u>2000</u>	<u>2001</u>	<u>Mean</u>
SR 6000	4.5	5.6	5.1	5.3
Shade Champ	4.5	5.2	4.3	4.7
PST-DP9	4.0	4.1	4.3	4.2
LSD (0.05)	1.8	0.9	1.0	0.8

¹9 = no disease

²9 = ideal

Table 5. 2001 mean turf quality ratings for entries in a tall fescue turf trial seeded fall of 2000 near Rolesville, NC.

200200255

Entry	Apr-Jun	Jul-Sep	Oct-Dec	Mean
66% Matador 30% Midnight 2.5% CCM	7.2 ¹	7.6	7.2	7.3
50% Endeavor 50% DP9	6.6	6.8	6.2	6.5
5% Shade Champ 95% Summer Lawn	6.4	6.4	6.0	6.3
1/3 Confederate 1/3 Unique 1/3 CCM	6.3	6.0	6.0	6.1
50% Matador 50% Shade Champ	5.8	6.3	5.8	6.0
66% Matador 30% Midnight 2.5% CCM	5.9	6.0	5.8	5.9
8.3% ea. Denim, Blackstone, Livingston; 25% CCM 50% Summer Lawn	5.4	6.0	6.0	5.8
PST-5BZ	5.8	5.7	5.7	5.7
PST-5KI	6.1	5.6	5.5	5.7
PST-5BAB	5.6	5.6	5.8	5.7
PST-5BRO	5.2	5.4	6.2	5.6
Durana	5.8	5.2	5.7	5.6
Syn R5JM	6.3	5.0	5.3	5.5
Syn 5S2	5.7	5.1	5.7	5.5
PST-57E	6.1	4.9	5.3	5.4
Endeavor	5.3	5.3	5.5	5.4
Syn 5A3	5.6	5.2	5.3	5.4
PST-DDL	6.1	5.0	5.0	5.4
Syn 5H2	5.3	5.4	5.3	5.3
Syn 5T2	5.6	5.3	5.0	5.3
PST-R5MM	5.0	4.9	6.0	5.3
Plantation	5.5	5.2	5.2	5.3
Syn 5DWF	5.6	5.3	4.8	5.3
1/3 CCM 1/3 Matador 1/3 Midnight	4.9	5.8	5.0	5.2
PST-R5AM	4.9	5.1	5.7	5.2
Syn R54M	6.3	4.9	4.3	5.2
Syn 578	5.3	5.0	5.2	5.2
PST-5DH	5.0	5.1	5.3	5.1
Tar Heel	5.9	4.7	4.8	5.1
Syn 5BRE	4.8	5.1	5.5	5.1
10% Shade Champ 10% CCM 80% Matador	5.8	5.1	4.5	5.1
Syn 5MP	5.2	5.0	5.2	5.1
PST-R5EL	4.7	5.0	5.5	5.1
Syn 5G9	4.3	5.4	5.3	5.0
Syn 5CH	5.2	4.9	5.0	5.0
Pure Gold	5.3	5.1	4.7	5.0
PST-523M	5.2	5.1	4.7	5.0
Syn 5NAS	5.8	4.6	4.5	4.9
Syn 5TUO	4.8	4.8	5.2	4.9
Coronado Gold	6.0	4.8	3.8	4.9
PST-5BE	5.0	4.8	4.8	4.9
Dominion	4.7	5.1	4.8	4.9
Jaguar II	5.3	4.7	4.7	4.9
Wolfpack	4.7	4.9	5.0	4.9
Matador	5.4	4.4	4.7	4.8
Gazelle	4.9	4.9	4.7	4.8
Olympic Gold	4.5	4.8	5.2	4.8
90% Summer Lawn 5% CCM 5% Shade Champ	5.3	4.6	4.5	4.8
Syn R5DO	5.0	4.3	5.0	4.8
Syn R5PL	4.8	4.9	4.5	4.7
PST-5PHR	4.9	4.8	4.5	4.7
PST-5UP	4.8	4.8	4.5	4.7
Syn 5BEH	4.4	4.7	5.0	4.7
Tomahawk (E)	5.0	4.2	4.7	4.6
Bonanza	4.2	4.7	5.0	4.6
PST-R5AU	4.8	4.7	4.3	4.6
3% CCM 87% Summer Lawn 10% Brilliant	4.7	4.9	4.2	4.6
Apache II	4.4	4.8	4.5	4.6

Table 5. 2001 mean turf quality ratings for entries in a tall fescue turf trial seeded fall of 2000 near
 Rolesville, NC. (Cont'd)

Entry	Apr-Jun	Jul-Sep	Oct-Dec	Mean
Duster	4.7	4.8	4.2	4.5
Bandana	4.7	4.8	4.2	4.5
Syn 5HU0	4.3	4.7	4.7	4.5
PST-5FH	4.8	4.8	3.8	4.5
DC-23923	4.3	4.7	4.5	4.5
PST-5ASR	4.4	4.6	4.3	4.4
3% CCM 30% Denim 66% Endeavor	4.6	4.9	3.8	4.4
Rebel Jr.	5.0	4.6	3.7	4.4
OnCue	3.8	4.4	5.0	4.4
Tomahawk RT	5.7	4.3	3.0	4.3
Coronado	4.7	4.1	4.2	4.3
Syn 5KU	4.1	4.7	4.2	4.3
PST-5LMD	3.5	4.6	4.7	4.2
95% DP9 5% Summer Lawn	4.4	4.0	3.7	4.0
Virtue	4.3	4.1	3.5	4.0
Silverado	3.8	3.4	4.5	3.9
Tomahawk	3.8	3.6	3.7	3.7
Eldorado	3.0	3.2	2.8	3.0
Mowless	2.3	2.7	2.8	2.6
5% CCM 90% Summer Lawn 5% North Star	3.4	2.3	2.0	2.6
LSD (0.05)	1.5	1.0	1.4	1.0

¹9 = ideal

Table 6. 2001 mean winter color and turf quality ratings for entries in a tufted hairgrass/crested dogtail mixture turf trial seeded fall of 2000 near Hubbard, OR.

Entry	Winter Color	Turf Quality
5% Shade Champ, 95% Bonnie Dunes	6.7 ¹	6.6 ²
25% DP9, 75% North Star	3.7	6.4
PST-CDW	7.7	6.4
1/3 Brightstar II, 1/3 Shade Champ, 1/3 Bonnie Dunes	5.7	6.3
66% Matador, 30% Midnight, 2.5% Shade Star	6.0	6.3
Shade Star	6.7	6.3
1/3 Shade Star, 1/3 Matador, 1/3 Midnight	5.7	6.2
5% Shade Star, 80% Matador, 15% Midnight	5.3	6.1
10% Shade Champ, 10% Shade Star, 80% Matador	5.3	6.0
50% North Star, 50% DP9	2.3	6.0
50% Opti-Green, 50% Shade Champ	4.3	6.0
75% Shade Champ, 25% Unique	2.3	6.0
3% Shade Star, 87% Summer Lawn, 10% Brilliant	6.0	5.9
25% Shade Champ, 75% Bonnie Dunes	5.0	5.8
5% Shade Star, 90% Summer Lawn, 5% North Star	5.3	5.8
5% Shade Champ, 95% Summer Lawn	5.7	5.7
8.3% Denim, 8.3% Blackstone, 8.3% Livingston, 25% Shade Star, 50% Summer Lawn	5.7	5.7
1/3 Shade Star, 1/3 North Star, 1/3 Summer Lawn	7.0	5.6
50% Shade Champ, 50% Bonnie Dunes	4.7	5.6
50% Matador, 50% Shade Champ	5.3	5.5
3% Shade Star, 30% Denim, 66% Endeavor	5.3	5.4
90% Summer Lawn, 5% Shade Star, 5% Shade Champ	5.0	5.4
1/3 Confederate, 1/3 Unique, 1/3 Shade Star	6.3	5.3
50% DP9, 50% Bonnie Dunes	4.0	5.3
Shade Champ	2.3	5.1
75% DP9, 25% Bonnie Dunes	3.0	5.0
PST -DCM	3.7	5.0
DCE Bulk	3.3	4.4
PST-DP9	2.7	4.4
PST -NDB	3.3	4.4
50% Endeavor, 50% DP9	3.3	4.2
DCM-Old	2.3	4.0
Desch Old Mig Airfield Bulk-Early	2.3	3.9
95% DP9, 5% Summer Lawn	3.3	3.6

LSD (0.05)

1.4

0.7

¹9 = dark green

²9 = ideal

U.S. DEPARTMENT OF AGRICULTURE
 AGRICULTURAL MARKETING SERVICE
 SCIENCE AND TECHNOLOGY DIVISION - PLANT VARIETY PROTECTION OFFICE

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 652a) and the Paperwork Reduction Act (PRA) of 1995.

EXHIBIT E
 STATEMENT OF THE BASIS OF OWNERSHIP

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) Pure Seed Testing, Inc.	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER PST-25086	3. VARIETY NAME Shade Champ
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) P.O. Box 449 Hubbard, OR 97032	5. TELEPHONE (include area code) (503) 651-2130	6. FAX (include area code) (503) 263-0703
	7. PVPO NUMBER 200200255	

8. Does the applicant own all rights to the variety? Mark an "X" in appropriate block. If no, please explain. ☒ YES ☐ NO

9. Is the applicant (individual or company) a U.S. national or U.S. based company?
 If no, give name of country ☒ YES ☐ NO

10. Is the applicant the original breeder? If no, please answer the following:
 a. If original rights to variety were owned by individual(s):
 Is (are) the original breeder(s) a U.S. national(s)? If no, give name of country ☒ YES ☐ NO

b. If original rights to variety were owned by a company:
 Is the original breeder(s) U.S. based company? If no, give name of country ☒ YES ☐ NO

11. Additional explanation on ownership (If needed, use reverse for extra space):

Pure Seed Testing, Inc. has licensed Shade Champ to Turf-Seed, Inc.

PLEASE NOTE:

Plant variety protection can be afforded only to owners (now licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original breeder, both the original breeder and the applicant must meet one of the above criteria.

The original breeder may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.

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